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***Comments on the April 2013 EPA External Review Draft and on
Appendix D: Traditional Ecological Knowledge and Characterization of the
Indigenous Cultures of the Nushagak and Kvichak Watersheds, Alaska***

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§0. Introduction

This essay is an update to my submission to EPA June 23, 2012 that offered some technical comments on the 2012 documents that were under public review. At the August 2012 hearings on the 2012 EPA drafts in Anchorage, I was one of about 100 persons who testified in person. I have never worked under contract on any aspect of the Pebble Mine Project. I traveled to and testified at the hearing in Anchorage at my own expense.

I am highly qualified to offer comments of the April 2013 External Review Draft of *An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska*. I have worked on the Dena'ina language since 1972. Dena'ina is the Dene (Athabascan) language that I know the best. Over the years I have worked closely with over 50 expert Dena'ina speakers from the communities of Lime Village, Stony River, Nondalton, and Pedro Bay. I manage very large data sets of narratives and vocabulary for Dena'ina as well as for nine other Alaska Dene languages. I have speaking ability in Ahtna and Dena'ina. I am the most experienced field linguist in Alaska. With nearly 900 documents (publications and unpublished materials) I am the single largest contributor to the Alaska Native Language (Center) Archive that is maintained at UAF (<http://www.uaf.edu/anla/>).

My June 23, 2012 comments submitted to EPA emphasized the section of the 2012 report that I am best qualified to offer comments on *Volume 2, Appendix D* "Traditional Ecological Knowledge and Cultural Characterization of the Nushagak and Kvichak Watersheds, Alaska" by Professors Boraas and Knott. In this brief essay I will comment on the April 2013 Executive Summary and the April 2013 draft of Appendix D.

In addition, I have taken some time to read through the corresponding topical chapters that the Pebble Partnership group has posted as Pebble EBD at their website (<http://www.pebbleresearch.com/>). The chapters of the Pebble EBD that I have the expertise to comment upon are: Braund & Associates 2008, Bristol Bay Drainage: Chap. 22 (Cultural Resources), Chap. 23 (Subsistence & Traditional Knowledge); Cook Inlet Drainage and Marine Chap 50 (Cultural Resources). In §2 I make several contrastive comments between these

cultural documents: a) the EPA 2013 (mainly appendix D) and b) the 2008 cultural resources chapters noted above that were sponsored by Northern Dynasty.

§1.0 General comments and questions

The 2013 executive summary is extremely well done. The succinct presentation with charts, maps and photographs offers a broad but concise review of the major issues surrounding the Pebble Project that heretofore have not been available either in the local region, or within Alaska, or to the general public throughout the United States. For some years I have gathered various articles and documents on the Pebble Mine. However, I never have had a sense for the inter-related development, social and environmental issues until I read the 2012 version of the Executive summary. I am favorably impressed by the outline and the quality of research in sub-areas. Given the rapid time-frame that the authors had to do the work, I think the 2012 draft reports and the 2013 revised versions are highly informative.

The proposed Pebble Mine cannot process the large quantity of raw materials either near the site nor in the immediate region, nor in Alaska. While the transportation corridor for the Pebble Mine is mentioned once on p. 10 of the EPA executive summary, it is my understanding that the 2012-2013 EPA work was not able to devote much time to the full spectrum of ancillary mining-related developments: the energy needs and options, the 80 mi. access road; and the development of a deep-water port on Cook Inlet; the social impacts of the housing of workers during and after construction. This Various chapters of the Pebble/Northern Dynasty research address the transportation corridor and the port development. How and when will the EPA also be able to offer independent evaluations of the full spectrum of impact of this massive projects of the project? When will the general public be able to see summaries of these critical issues, beyond those sponsored by Northern Dynasty/Anglo-American?

Comparisons of Alaska's several large mine projects should be invited. Two large mines in Interior Alaska have gone forward without special controversy, Pogo Mine and Fort Knox Mine. Other large mining projects in preliminary phases— Donlin Gold and Tower-Hill (Livengood) Gold—are moving forward with minimal controversy. It is valid to ask for an audit of work loads at Alaska state agencies that are attending to large mine development issues: DNR, ADFG, Dept of Justice, others. I would like to see how the State of Alaska agencies have allocated their resources and staff time on all of the large the large gold mine projects. The other large mines (Donlin Gold, Livengood Gold Project) certainly put demands on the work loads of state agency personnel. Also the Pebble Project has funded some state agencies. How does the Pebble Partnership's industry sponsorship at some Alaska agencies compare with those of the Donlin and Livengood projects?

3) How much mega-sized project development can or should take place in Alaska between say 2015 and 2035? The Susitna Hydroelectric Project is moving ahead with public and political support. What are the overall projected effects on housing, energy needs, the development of roads, ports and so forth of the assembled mega-sized projects that are being proposed and planned now? How are the largest Alaska projects being weighed for their cumulative effects on

population, social services, rural poverty, energy, climate, specific industries (tourism, fisheries) and so forth?

§2. Comments on Appendix D, by Boraas and Knott

I have briefly reviewed the 2013 Appendix D, I see that most of the suggestions that I sent directly to authors Boraas and Knott were addressed. This chapter is very well done given the rapid time frame for this work. Appendix D has some original primary data based on traditional elements in the modern cultures of the Yupik and Dena'ina. Synopses on more subtle aspects of modern life are important: nutrition, health, exercise, spirituality, and beliefs about the environment.

The array of recently recorded statements by local residents are an important feature of the 2012 Appendix D. The process for conducting the interviews (summarized in their Appendix 1) is quite formal by Alaska ethnographic field work standards. These interview excerpts indicate that Boraas and Knott had active participation in the seven communities with a large group of interviewees. The authors did a fine job in maintaining rapport and clarity. Braund & Assoc. 2008 (Chapters 22, 23, and 50) presented no materials based upon interviews or discussion topics with local residents that would be affected by the proposed mine.

As noted in Boraas and Knott Table 2 (p.16), of the fourteen communities that they have surveyed in the region ten are Yupik or part-Yupik and only two (Pedro Bay and Nondalton) are Dena'ina and two are part Dena'ina. However, when we consider the study area closest to the proposed Pebble Mine, and we make note of the sources with high quality cultural resource and ethnographic information, published as well as unpublished, *the research materials for the Dena'ina are vastly more extensive than those for the Yupik*. I refer to this as *the Nushagak-Iliamna Yupik-Dena'ina research disparity situation*

Boraas and Knott cite the array of useful substantive publications for Inland Dena'ina: Ellanna 1986, Ellanna and Balluta 1992, P. Kari 1991, Tenenbaum 1984, P. R. Kari 1987, Balluta 2008, Johnson 2004, Kari 2007, Coray 2007, Russell and West 2003, Stickman et al 2003, Evanoff 2010. These have been produced due to major contributions from Dena'ina speakers from three communities (Nondalton, Pedro Bay and Lime Village).

In 2011-12 Boraas and Knott were able to survey most of the Nushagak/Iliamna Yupik communities (Newhalen, Kokhanok, Igiugig, Levelock, New Stuyahok, Koliganak, and Ekwok) in person. In fact their interviews and summaries from these communities are significant. In addition Boraas and Knott cite the extensive lower Kuskokwim Yupik sources (esp. sources edited by Anne Fienup-Reardon). However, there are very few primary ethnographic sources based upon in-depth research in for the Nushagak/Iliamna Yupik communities (other than sources by James VanStone 1967, 1971).

Comparing indexed audio collections, the audio recordings from the 1970s and 1980s for Nushagak/Iliamna Yupik-Dena'ina interface are extremely uneven. The Dena'ina Audio collection (DAC) that I maintain at ANLC had nearly 500 recordings, and it has over 225 recordings made with 50 or more Dena'ina speakers from Lime Village, Nondalton and Pedro Bay. As far as I know no Yupik audio materials for the Iliamna/ Nushagak communities have been consolidated and indexed. (That would indeed be a valuable research objective.)

. In 2013 this disparity remains striking, and we accordingly this disparity applies to both the 2013 report by Boraas and Knott and the 2008 report by Braund and Assoc. Since the proposed Pebble Mine site is right at this Yupik-Dena'ina interface, this disparity in the locally reported ethnographic research materials, (published and unpublished) for the two local indigenous cultures and languages must be emphasized.

The Dena'ina ethnogeographic materials are among the best for any Alaska Native language. On pp. 106-07 Boraas and Knott summarize Evanoff 2010. This attractively formatted book has accurate Dena'ina place names lists and maps on a color land-sat base image. These maps were prepared by National Park Service. In Evanoff 2010, the Dena'ina traditional territory is exquisitely and objectively defined by the Dena'ina place name network, which surrounds the Pebble mine site to the north and to the east. There has never been any cumulative compilation of Yupik place names at this Yupik / Dena'ina interface.

The treatment of Dena'ina and Yupik place names in Braund 2008 is of extremely poor quality. (The full citations are Braund and Assoc. Chap. 22, pp. 22-34 to 22-36; with maps in Figs. 22-20, 22-21, 22-23, and a 28-page Appendix 22A with 950 place names entitled "All Documented Place Names in the Bristol Bay and Cook Inlet Drainages." For Cook Inlet place names Chap. 50, Table 50-2 and Fig. 50-4) The Appendix 22A is riddled with errors and has inaccurate citations of sources for Appendix 22A. Several incorrect statements are made on pp. 22-34 to 22-36. One colleague told me that he was a peer reviewer for the 2008 cultural resources chapters by Braund and Assoc. He had assumed that the place names data in their 2008 report *were original research conducted by Braund and Assoc.* However, I can show (if need be) that Braund and Assoc.--without my permission—used files with Dena'ina place name data that was being actively edited and revised by me for Lake Clark National Park and for the publication Evanoff 2010. Then they co-mingled with those files Yupik place name data from various uncited sources.

Thus I continue to be concerned that the Yupik ethnogeography at this Yupik/Dena'ina interface and the Pebble Mine area remains so poorly researched. On p. 107 Boraas and Knott mention the Nushagak Yupik place name coverage by the Nature Conservancy Place Name Project for the Nushagak area. However these materials are very preliminary.

I think that Boraas and Knott have done a very good job with their Appendix D in a short time frame to summarize a wide range of cultural resource topics about the peoples and communities in proximity to the Pebble Mine site.

In my opinion the Pebble Mine never should be permitted due to the projected potential effects of this large-scale mine at these major salmon-bearing watersheds as well as the effects of the ancillary infrastructure for the mine.